

**REMARKS**

Claims 1-9 are pending in this application, of which claim 4 is amended. No claims are canceled or added. No new matter is added.

The specification is objected to because a more descriptive title is desired. As shown above, applicants amend the title accordingly. Withdrawal of the objection to the title is now requested.

Claims 1-9 stand rejected under 35 U.S.C. § 102(e) as anticipated by **Wieczorek et al.** (U.S. Patent No. 6,207,563). Applicants respectfully traverse this rejection. In order to justify an anticipation rejection, the prior art reference must teach every feature recited in the claims. Applicants show below that **Wieczorek et al.**, the applied prior art, does *not* teach every claim feature. Therefore, the anticipation rejection should be withdrawn.

Both independent claims describe methods comprising the repeated removal of residual metal that did not react during heat treatment. Claims 2, 3, and 5-9 each depend from one of claims 1 and 4, so they include this feature by virtue of their dependencies. Therefore, in order for **Wieczorek et al.** to anticipate claims 1-9, it must teach the repeated removal of residual metal that did not react during heat treatment.

Applicant respectfully submit that, because the Office Action does not identify any teaching in **Wieczorek et al.** of the repeated removal of residual metal that did not react during heat

treatment, the anticipation rejection has not been justified. Accordingly, withdrawal of the rejection of claims 1-9 under 35 U.S.C. § 102(e) is now requested.

Applicants of course acknowledge that the Office Action states in section 5 (see especially page 3, lines 3-4) that **Wieczorek et al.** teaches the above-identified claim feature. However, the Office Action does not indicate where in the **Wieczorek et al.** disclosure this feature supposedly can be found. (Applicants recognize that Figs. 4-7 are generally cited, but these figures do not teach the claimed feature noted above.)

In view of this explanation, applicants submit that the anticipation rejection should be withdrawn for failure to teach every feature recited in the claims. Additionally, though, applicants offer the following:

The present invention can be characterized by the “repeating” step, that is, repeating a depositing step, a silicide applying (heat treating) step, and a removing step. In other words, in the present invention, a silicide film (layer) (4S’) is formed a number of times in accordance with such steps. Therefore, an increase in the sheet resistance of the silicide film resulting from a decrease in the gate width is prevented by the repeating step.

**Wieczorek et al.** discloses that after forming a silicide layer (64) once, the second heat treating step is performed to break up filaments (68). **Wieczorek et al.** also discloses that a metal

layer (70) of material capable gettering oxygen is deposited on a metal layer (66) to improve the overall sheet resistance of the subsequently formed silicide layer (64). (Note column 8, lines 2-7, and Fig. 6.)

However, **Wieczorek et al.** does not disclose the repeating step of the present invention. **Wieczorek et al.** merely discloses that the heat treating step is repeated. The metal layer (66) and the metal layer (70) are simultaneously removed by a single removing step. Therefore, applicants' invention is significantly different from that disclosed by **Wieczorek et al.**, and the anticipation rejection should be withdrawn.

If for some reason the Examiner decides to maintain the present rejection, applicants respectfully request that he specifically indicate where in the **Wieczorek et al.** disclosure it supposedly teaches the repeated removal of residual metal that did not react during heat treatment. Applicants submit that the anticipation rejection is otherwise unsupported.

In view of the amendments and remarks above, applicants now submit that the entire application is in condition for allowance. Accordingly, a Notice of Allowability is hereby requested. If for any reason it is felt that this application is not now in condition for allowance, the Examiner is invited to contact applicants' undersigned attorney at the telephone number indicated below to arrange for disposition of this case.



09/892,893

Attached hereto is a marked-up version of the changes made to the title and the claims by the current amendment. The attached page is captioned "**Version of Amendments with Markings to Show Changes Made.**"

In the event that this paper is not timely filed, applicants petition for an appropriate extension of time. The fees for such an extension, or any other fees which may be due, may be charged to Deposit Account No. 01-2340.

Respectfully submitted,  
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Enclosures: Version of Amendments with Markings to Show Changes Made  
Petition for Extension of Time

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**VERSION OF AMENDMENTS WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE TITLE:**

Amend the title as follows:

METHOD FOR MANUFACTURING SEMICONDUCTOR DEVICES WITH SILICIDE  
FILMS THEREON

**IN THE CLAIMS:**

Amend claim 4 as follows:

4. (Amended) A method for manufacturing a semiconductor device, comprising:  
forming a conductive portion on [the] a substrate, wherein the conductive portion  
includes a gate electrode;  
forming spacer on a side wall of the gate electrode;  
depositing metal on the surface of the substrate including the conductive portion;  
applying silicide on the conductive portion in a self-aligned manner by heat treating the  
substrate on which the metal is deposited;  
removing residual metal that did not react during the heat treatment; and  
repeating the depositing step, the silicide applying step, and the removing step once or a  
number of times.

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